

Claims

We claim:

1. A flue having improved flow characteristics for use with a selective catalytic reduction reactor, comprising:

a flue having an inlet end for receiving a gas flow and an outlet end for discharging the gas flow into a selective catalytic reduction reactor;

vanes located within the flue upstream of the selective catalytic reduction reactor to divide the gas flow into two or more separate flow channels each channel having an inlet and an outlet; and

means for supplying ammonia into the gas flow within each flow channel.

2. The flue of claim 1, wherein the flow channels terminate proximate to the selective catalytic reduction reactor.

3. The flue of claim 1, wherein the means for supplying ammonia comprises an ammonia injection grid.

4. The flue of claim 1, further comprising conditioning means within at least one flow channel for conditioning the gas flow pattern.

5. The flue of claim 4, wherein the conditioning means comprises a perforated plate.

6. The flue of claim 4, wherein the conditioning means comprises one of flow straighteners, dampers, and combinations thereof.

7. The flue of claim 4, wherein the conditioning means comprises at least one static mixing tab.

8. The flue of claim 4, wherein the conditioning means comprises a straightening tube bundle adjacent the outlet end of the at least one channel.

9. The flue of claim 1, comprising gas flow rate measuring means within at least one flow channel for measuring the gas flow rate through the at least one flow channel.

10. The flue of claim 9, wherein the gas flow rate measuring means comprises a first pressure tap positioned adjacent the inlet end of the at least one channel and a second pressure tap positioned adjacent the outlet end of the at least one channel.

11. The flue of claim 9, comprising means for controlling the amount of ammonia provided to the at least one channel in response to the gas flow rate through the at least one flow channel.

12. The flue of claim 11, wherein the means for controlling the amount of ammonia provided to the at least one channel comprises a control valve.

13. The flue of claim 1, comprising means for controlling the gas flow rate through at least one flow channel.

14. The flue of claim 14, wherein the means for controlling the gas flow rate through at the least one flow channel is selected from one of a perforated plate, a damper, and combinations thereof.

15. A flue having improved flow characteristics for use with a selective catalytic reduction reactor, comprising:

a flue having an inlet end for receiving a gas flow and an outlet end for discharging the gas flow into a selective catalytic reduction reactor;

vanes located within the flue upstream of a selective catalytic reduction reactor to divide the gas flow into two or more separate flow channels each channel having an inlet end and an outlet end wherein the flow channels terminate proximate to the selective catalytic reduction reactor;

means within each flow channel for supplying ammonia into the gas;
and

means within each flow channel for conditioning the gas flow pattern selected from at least one of a perforated plate, flow straighteners, dampers, a mixing tab, a rectifier grid and combinations thereof.

16. A flue having improved flow characteristics for use with a selective catalytic reduction reactor, comprising:

a flue having an inlet end for receiving a gas flow and an outlet end for discharging the gas flow into a selective catalytic reduction reactor;

vanes located within the flue upstream of a selective catalytic reduction reactor to divide the gas flow into two or more separate flow channels each channel having an inlet end and an outlet end wherein the flow channels terminate proximate to the selective catalytic reduction reactor;

means within each flow channel for supplying ammonia into the gas;

means within each flow channel for conditioning the gas flow pattern selected from at least one of a perforated plate, flow straighteners, dampers, a mixing tab, a rectifier grid and combinations thereof;

gas flow rate measuring means within at least one flow channel for measuring the gas flow rate through the at least one flow channel; and

means for controlling the gas flow rate through the at least one flow channel.

17. The flue of claim 16, comprising means for controlling the amount of ammonia in the at least one channel in response to the gas flow rate through the at least one flow channel.